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ABSTRACT

This learning guide on conserving limited resources is part of a series of learning guides developed for competency-based adult consumer and homemaking education programs in community colleges, adult education centers, community centers, and the workplace. Focus is on the connections among personal, family, and job responsibilities so that these aspects of living will complement each other. Introductory material includes general guidelines/check list for users with key to symbols used to designate enhancement activities and an introduction. The guide covers four competencies: identify resources available to individuals and families; identify use and misuse of resources; determine how use of resources affects the environment and their availability; and apply principles of conservation in consumption practices. Materials provided for each competency include a list of learner outcomes, key ideas, definitions, facilitator strategies, and suggested learner activities. Twenty-four supplements contain information and activity sheets on the following: personal resources, goals, environmental crisis, earth-friendly shopping, solid waste, garbage, lifestyle options, recycling, and labels. A bibliography contains 67 items. (YLB)

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Conserving Limited Resources

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General Guidelines/Checklist for Users

The terms "facilitator" and "learner" are used throughout to describe the instructor and participants.

STRATEGIES (for facilitators) and ACTIVITIES (for learners) as stated in the guide are not always parallel as to numbering system.

Facilitators need to find out where learners are with each of the competencies. For example, if working with learners who have been in a Home Economics program, the facilitator may choose not to do all the competencies such as those related to health and safe environments. If working with JTPA clients, for example, it might be necessary to cover all competencies.

Key to Symbols - The following symbols are used throughout the guides to designate enhancement activities:

- related basic skills, giving particular attention to language arts and mathematics
- related decision-making and problem-solving skills, including the application and transferability of these skills to personal, family, and work responsibilities to be demonstrated
- enrichment activities according to learner abilities and experiences
- interrelationship of concepts to personal, family, and work
- influence of technology on the subject matter, application of knowledge, and related work
- pre- and/or posttest assessment activities

Before addressing any of the competencies, the facilitator should check in advance to see what materials or preparations are needed for the competency as numbered.

Competency #1 - Identify resources available to individuals and families.

_____Duplicate Supplement 1 to assess learners' individual and family resources.

_____Consider duplicating case study in Supplement 2 to illustrate the differences in resources available and ways resources are used.

_____Duplicate Supplement 3 to aid learner in identifying how resources might be exchanged, developed, or shared.

_____The facilitator may cut out pictures depicting items needed by learners. Pictures could be drawn from a hat or bowl. Then, alternative resources to be used could be identified.

_____The facilitator may wish to have available magazine pictures and poster board or newsprint for a collage illustrating resources needed during stages of the life cycle.

_____Duplicate Supplement 4 to list learners' goals and resources needed.

Competency #2 - Identify use and misuse of resources.

_____Duplicate Supplement 2 to illustrate how use of resources affects lifestyles.

_____Prepare playing cards as directed in Supplement 5 to distinguish between wants and needs.

_____Duplicate Supplement 6 to review the decision-making process.

Competency #3 - Determine how use of resources affects the environment and their availability.

_____The facilitator may wish to read Supplement 7, "The Environmental Crisis," for background on this crisis. It may be appropriate to duplicate this supplement for learners.

_____The facilitator should try to have newspapers and magazines available containing articles about environmental issues.

_____Duplicate Supplement 8, "Pretest on Limited Resources," to raise learners' interests and to measure learners' knowledge about how use of natural resources may affect the environment. Use of the facilitator guide may be helpful for answers and explanations of pretest items.

_____Duplicate Supplement 9, "Effects of Resource Use on the Environment," to identify some effects of resource use on the environment.

_____Duplicate Supplement 10, "Earth-Friendly Shopping," to identify earth-friendly choices when shopping.

_____If to use, contact a resource person to present information on water quality.

_____The facilitator may wish to have available pictures depicting natural resources being used.

_____Duplicate Supplement 11 to identify environmental hazards in the home.

_____Duplicate Supplement 12 to give examples of nontoxic cleaning supplies.

_____The facilitator may have available resources for learner research on the local environment.

Competency #4 - Apply principles of conservation in consumption practices.

_____The facilitator may use Supplement 13, "Did You Know These Facts and Figures About Solid Waste?," as a resource about waste.

_____Duplicate Supplement 14 for identifying individual learner conservation practices.

_____The facilitator may collect and display packaging from a meal at a fast-food restaurant.

_____Duplicate Supplement 15, "A Mountain of Garbage," or Supplement 16, "Garbage Bag Recipe," to define the need for conservation.

_____The facilitator may wish to have a collection of magazine or newspaper pictures that depict a "throw-away" society.

_____Duplicate Supplement 17 to identify "voluntary simplicity" techniques used in case situations.

_____Duplicate Supplement 18, "Baker's Dozen," to identify importance placed on electrical appliances.

_____The facilitator may wish to provide examples of Energy Guide labels on appliances to comparison shop for energy savings.

_____Duplicate Supplement 19 to define the 3 Rs in conservation (Reduce, Reuse, Recycle).

_____Duplicate Supplement 20 to illustrate how to prepare products for recycling.

_____If to use, contact a resource person to present information on energy costs and conservation.

_____Duplicate Supplement 21 to do a home garbage survey.

_____Duplicate Supplements 22 and 23 to illustrate environmental symbols.

_____Duplicate Supplement 24 for ideas about a project using "throw-aways."

_____The facilitator may have resources available for a research project on conserving energy.

Introduction

Resources include all the ways and means one uses to reach goals and maintain control over one's life. People can influence quality of life and lifestyle through decisions made about the use or misuse of resources to reach goals.

Many resources are available for use. Some resources are abundant and some are scarce, but all resources are limited. Few people have the resources to do or have everything they would like to. Choices must be made of which resources to use and how to use them wisely to meet needs.

Consumers make three kinds of choices:

1. Choices as money managers—fitting spending to money available to get the things wanted most
2. Choices as buyers—choosing which product best suits needs and is the best buy for the money
3. Choices as consumer citizens—creating an acceptable quality of life as well as considering the impact of decisions on others in the world and on the future

How one consumes (i.e., what one wants, how one shops, and how one buys and uses products and services) depends to a large part upon the values learned while growing up. Many people grew up in a world of what seemed like never-ending abundance, where consumption was almost a duty. A highly industrialized society produced radical lifestyle changes in the space of two generations. The American Dream seemed to be to make enough money to have the most and the best.

Times have changed. Expensive energy, scarce resources, international political entanglements, a low growth economy, and an environment in crisis are realities. A major concern is that humankind is rapidly using up the finite supplies of nonrenewable natural resources. It has been said that "Mother Nature is about to pull the plug on the American Dream."

This era of new values and limited resources may mean changes for all. The roles of the consumer as money manager and buyer may be giving way to emphasis on the role of the consumer as citizen. Consumer education may be linked to environmental education and now may include learning to make a positive difference in the impact one makes through consumer choices. Consumer rights and responsibilities may include more carefully analyzing wants and needs, taking time to be sure the most informed decisions are made, selecting only those products and services which maximize personal and family satisfaction, voluntarily simplifying lifestyle through choosing products and minimizing pollution, reducing waste, considering the impact of choices on the community and world as well as oneself, gathering and using information to balance personal benefits against societal costs, making conservation a part of the consumption process, and considering the entire lifetime of products (including extending the useful life of goods through recycling, reusing, and repairing). The dual goals of economic well-being and environmental protection would seem at one time to conflict, but now are essential to quality of life.

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Identify Resources Available to Individuals and Families.

Learner Outcomes

- Develop awareness of existing resources for the individual and family.
- Determine how various factors affect the resources one has.

Key Ideas

Resources include anything that would be useful in reaching specific goals.

Resources may be human or nonhuman. Human resources come from within the person and include time, energy, personal qualities, knowledge, talents, skills, and attitudes. Nonhuman resources are not physically or mentally part of an individual and may include material possessions, money or purchasing power, and community resources. Nonhuman resources may also include natural resources which are all those things in the environment that provide for survival (including soil, water, plants, animals, energy, minerals, and atmosphere).

Resources are used to meet emotional and physical needs.

While all people may have similar needs, individuals and families differ in resources that are available to satisfy needs. Needs differ somewhat from one family to another depending on size of family, age and health of family members, and other family circumstances.

Goals help determine what resources are needed and the way resources are used.

Definitions

resource	- what one uses to get what one needs and wants
human resources	- time, energy, personal qualities, knowledge, talents, skills, and attitudes which come from within the person
nonhuman resources	- material possessions, money or purchasing power, community resources; things and conditions outside of a person
life cycle	- predictable changes people go through in life; may include the stages of (1) birth and infancy, (2) childhood, (3) adolescence and youth, (4) adulthood, (5) middle age, and (6) old age
needs	- necessary things, including emotional needs (love, belonging, feeling worthwhile) and physical needs (food, air, water, clothing, shelter)
goal	- something to work toward; based on needs and requires use of resources

Resources that are available may be influenced by the following:

- a person's ability to exchange (trade), develop (expand), or share existing resources
- various economic factors (including income, cost of living, whether a person is employed, whether goods and services are available, availability and use of credit)
- a person's stage in the life cycle

Strategies and Methods

1. The facilitator could begin by asking learners to tell what comes to mind when the term "resource" is used. How is it defined? Then the facilitator might define resources as what we use (ways and means) to reach specific goals. Have learners give examples of resources.

2. Define goal as something one works toward. An example of a goal could be "finding a job." Resources could be a determined and positive attitude; time spent job-seeking; good health and energy to do work; close relationships with family and friends as a source of emotional support; and former employers who could give a good recommendation. Continuing with the job-seeking example, the facilitator might ask learners which of these resources they have and how does one get such resources?

3. People often think of money as the only resource, but everyone has other resources that can be used in place of money to get what is needed. Supplement 1, "I Have More Than Money," can be used to encourage learners to identify individual and family resources.

4. Resources available may be influenced by a person's ability to trade, expand, or share existing resources. Supplement 3, "What Can I Use . . .," may be used to assist learners in identifying how resources might be traded, expanded, or shared in order to increase resources in each case situation. For example, one might do more walking or use public transportation to cut costs of a car or car pool with neighbors to cut fuel use. Other examples could be generated.

5. Resources that are available can be affected by a person's stage in the life cycle. The facilitator could have learners use pictures from magazines to illustrate stages of the life cycle (See "Definitions.") Pictures might illustrate categories such as food, shelter, clothing, health, transportation, energy use and utilities, personal services, security, recreation, and education. Discuss basic needs of people at various stages of the life cycle. Ask what resources might be used to meet needs of people at various stages of the life cycle. An example or two could be companionship or health care for an elder or a healthy diet for a pregnant woman.

6. If appropriate, have learners list some goals to be attained within the next twelve months (use Supplement 4, "My Goal Analysis"). For each goal, name the resources that might be used. Discuss how goals and resources could be affected due to economic conditions such as unemployment, shortage of goods and services, credit, prices, and increased energy costs.

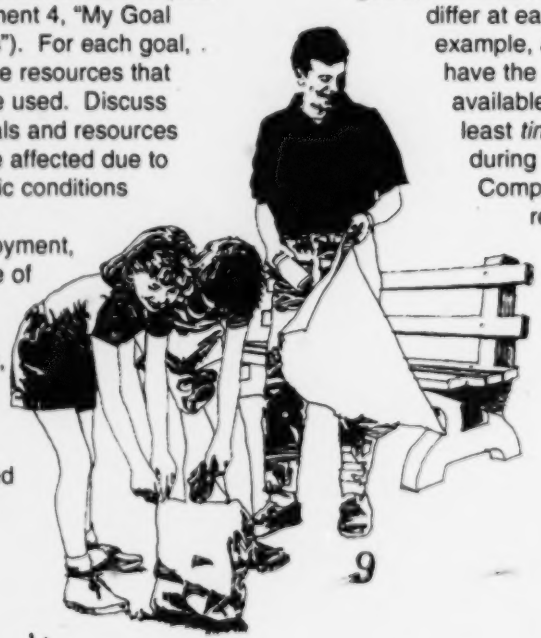
Suggested Activities

1. Have learners complete Supplement 1 to identify individual and family resources. D

2. To illustrate use of alternative resources, have learners draw from a hat or box a picture of something an individual or family might need. Brainstorm ways the item might be obtained without the use of money or at a reduced cost.

3. Have learners tell of an item recently acquired and the resources used to acquire the item. Tell if the item or service related to needs or goals of the person. Discuss what other resources could have been used.

4. Use magazines to prepare a collage illustrating stages of the life cycle. Have learner illustrate the stage of the life cycle they are now in, or have just left, or will be in. Discuss how one's goals, needs, and resources differ at each stage. For example, a person might have the most *time* available in old age; the least *time* available during adulthood. Compare other resources one may have at different stages in the life cycle.



Identify Use and Misuse of Resources.

Learner Outcomes

- Determine what factors may contribute to the use or misuse of resources.
- Show how decision-making skills can be used in determining appropriate use of resources.
- Identify use or misuse of resources in given individual situations.

Key Ideas

People can influence their quality of life and lifestyle through decisions made in the use or misuse of resources to reach goals.

Wise use of resources today should include concern about quality of life for all people, and making choices of a way of living that is in harmony with the total environment. Limited resources must be protected from misuse and waste, for the benefit of all people.

The decisions we make regarding resources can help to achieve a desired lifestyle. Decision-making skills can help make *appropriate* use of resources.

Definitions

wants	- desired things
needs	- necessary things
lifestyle	- way of living
quality of life	- degree of satisfaction with way of living based on how needs are met
resource management	- a process involving planning, controlling, and evaluating use of resources to ensure goals are met
use cost	- when using a resource reduces the amount available for future use

The decision-making process includes a series of steps such as gathering and analyzing information, comparing the alternatives and weighing results of each alternative, making a choice from among alternatives and taking action, and evaluating the action or results.

Strategies/Methods

1. The facilitator might ask learners to define lifestyle (the way one lives); then list what is included or affects lifestyle. Components of *lifestyle* may include *health* (including food, clothing, physical care, health habits, dental and medical care, exercise, rest, and relaxation), *environment* (including the shelter and setting for individual and family life); *energy use and utilities, personal services, transportation, security and protection* (mental security as well as physical protection and financial security), *education and cultural activities,* and *recreation.*

   The facilitator might ask learners to describe sample lifestyles taken from a television program. Discuss what resources might be needed and available to achieve the lifestyle. Extremes in lifestyle might be mentioned such as a homeless family living near a neighborhood of very expensive homes. Follow up with a discussion of common lifestyles found in one's neighborhood or community.

2. The facilitator should define and clarify *quality of life.* Encourage learners to name things they believe are necessary for a satisfying quality of life. Examples might include physical health, adequate income, skills and knowledge, safe environment, and social adjustment (including a feeling of belonging, love, acceptance from others, a feeling of being worthwhile). Ask learners to identify situations where resources have prevented one from having a satisfying quality of life. Some examples might include unemployment, crowded living conditions, or lack of education.

3. The facilitator should emphasize that how one controls the use of resources can influence the way one lives (lifestyle) and how well one's needs are met (quality of life). One may influence lifestyle and quality of life through the decisions made about the use of available resources. An example might be a person who lives "high" with the most expensive surroundings (lifestyle), and yet be unhappy, poorly nourished, and deeply in debt (quality of life). The facilitator should stress the *relationship between use of resources and achieving satisfaction with the way one lives.* Ask: What makes life satisfying? Could one be happy without having everything one wants or needs? What resources are most important in achieving a satisfying way of life?

4. The facilitator might emphasize that *wise use* of resources today includes concern about the quality of life for all people, and making choices that are good for the total environment. (See "Key Ideas.") Examples: pure air and water supplies are threatened; or supplies of energy resources may run out. The facilitator might ask learners "What changes in the American lifestyle might need to be made due to limited natural resources?" such as water, oil, fewer goods to choose from, reusing used goods, sharing goods and services with other people, using resources that restore themselves, increasing use of products that protect people from a polluted environment, producing needed goods, and so on.

5. Recognizing that resources are limited, decisions must be made. The facilitator might use Supplement 6, "The Decision-Making Process," as a transparency to point out the steps in decision-making.

6. The facilitator might ask learners to think of a decision made in the past week. Ask what factors helped them make a decision? Are they satisfied with their decisions? Are other family members satisfied with their decisions? Did the decisions help to make life better?

Suggested Activities

1. Have learners define and illustrate *lifestyle* using pictures to create a collage showing lifestyles. Pictures could depict home setting, personal services, energy use and utilities, transportation, security and protection, health (food, clothing), education, and cultural pursuits.

2. Have learners brainstorm examples of a "throw-away lifestyle." A "throw-away lifestyle" is one where . . .

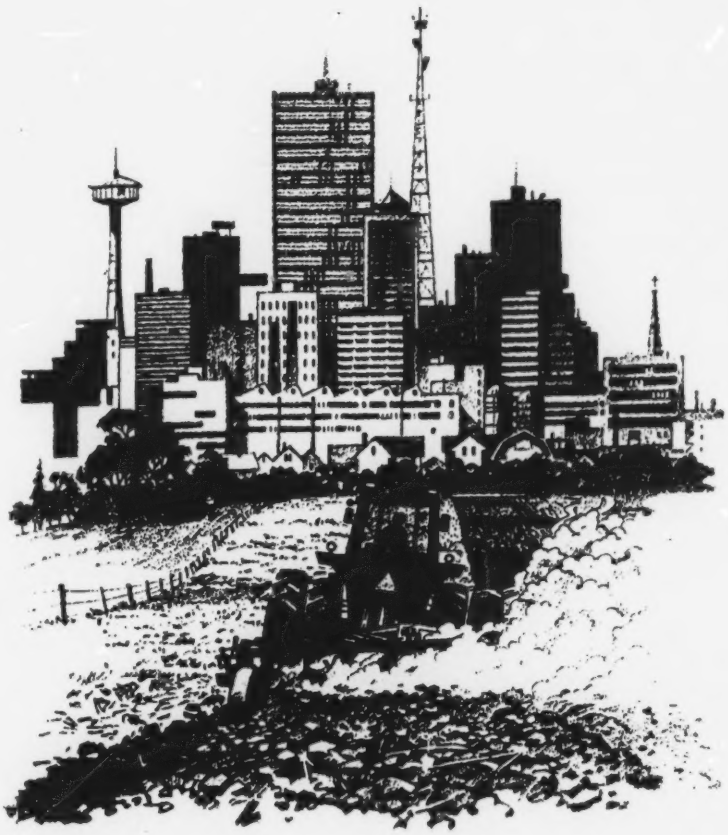
   - there is a large amount of waste.
   - products are chosen with little regard to the effect on the environment.
   - products are designed to have a short life.
   - much of the cost of a product is for packaging.
   - much of what is thrown away still has value.

   Share and discuss effects of such a lifestyle on the quality of life.

3. Have learners read Supplement 2, "Case Study," and answer questions to illustrate the difference between having resources and planning for using resources wisely. Some questions might include the following: What resources did each family have? How did each situation change? What factors affected resources (such as the economy)? What effects did planning have on resources? Why might a person not plan the use of resources? What advantages are there to planning the use of resources?

4. Learners can use Supplement 5, "Your Choice," to distinguish between wants and needs.

5. Supplement 6, "The Decision-Making Process," might be used to help learners analyze decisions and to see the relationship between values, needs, wants, resources, and decisions.



Determine How Use of Resources Affects the Environment and Their Availability.

Learner Outcomes

- Recognize which resources are renewable and which are nonrenewable.
- Become aware of how resource use may affect the environment.
- Cite ways to become responsible environmental consumers.

Key Ideas

The three major components of the environment are air, water, and land.

Natural resources include soil, water, plants, animals, energy, minerals, and atmosphere.

One's personal habits, including what one buys and what one throws away, affect the environment.

Although renewable resources have the potential to be restored, renewable resources may be seriously harmed by misuse.

The environment may be harmed by (1) using up natural resources (e.g., using up the world's supplies of oil to heat homes and operate automobiles), (2) disturbing natural environments (such as cutting down trees in the tropical rain forests possibly resulting in reducing oxygen that helps regulate the earth's temperature), and (3) pollution (such as burning fossil fuels like coal which produce acids that may damage tree foliage and damage solid quality; or putting harmful garbage in landfills which may poison underground water).

Definitions

environment	- everything which surrounds one and affects quality of life; also, features of the earth which support and affect life
pollution	- waste that fouls the environment
consume	- to use up
conserve	- to keep from being wasted
natural resources	- anything found in the earth's environment used to meet needs and support life; includes soil, water, plants, animals, energy, minerals, and atmosphere
"green" product	- product which has characteristics of helping protect the environment
"earth-friendly"	- similar to "green"; action or product which has characteristics of helping protect the environment
renewable	- may be restored or replenished with some effort (air, water, plants, soil, and animals)
nonrenewable	- can be used up and is gone forever (oil, coal, ore, and lead)

Every product has an impact on the environment. The goal is to have the least harmful impact possible.

Technological advances have influenced the quality of life and lifestyle of people. Comfortable homes, private and public transportation systems, agricultural abundance, and industrial output became part of "the good life."

Products that help protect the environment are called "green" products or "earth-friendly" products. Characteristics of these products are not dangerous to health or environment, does not use much energy for manufacturing or disposal, no unnecessary packaging, and/or does not threaten animals.

Strategies/Methods

1. The facilitator should define and clarify the term "environment" as used in this competency. The facilitator might stimulate some discussion by asking learners what might happen if natural resources were depleted or severely limited. Supplement 7, "The Environmental Crisis," might be used for background information.

2. Have learners complete the pretest (Supplement 8) and, depending upon interest expressed, clarify how the use of natural resources may affect the environment. Concerns such as air pollution and its results (greenhouse effect, damage to the ozone layer, and acid rain), radon and other gases, asbestos, household chemicals, noise pollution, water pollution, and land damage might be given as examples of environmental concerns. ☑

3. The facilitator should emphasize that every product one buys and every behavior has *some impact* on the environment. Stress with learners that simple actions from many people can make an important impact on the environment. Supplement 9, "Effects of Resource Use on the Environment," might be used to identify and discuss some effects of resource use on the environment.

4. The facilitator may wish to call attention to common terms used today such as "green products" or "earth-friendly" choices. (See "Key Ideas" for characteristics.) The facilitator might have samples of products that carry these designations or ask learners to bring in samples.

5. If there is interest, the facilitator could invite a resource speaker from the local water utility to explain the following: how water quality is controlled, potential water pollutants, and tests that can be used to determine water quality.

Suggested Activities

1. Have learners collect pictures from magazines or newspapers depicting natural resources being used. Examples might be an ad for motor oil (nonrenewable) and a picture of a water filter (renewable). Have learners classify examples of resources in pictures as renewable or nonrenewable.

2. Have learners complete the pretest in Supplement 8. Discuss how resources affect the environment. ☑

3. Have learners make a list of appliances at home or advertised in magazines or newspapers. Identify the energy source needed to operate each appliance. Classify the energy source as a renewable or nonrenewable natural resource.

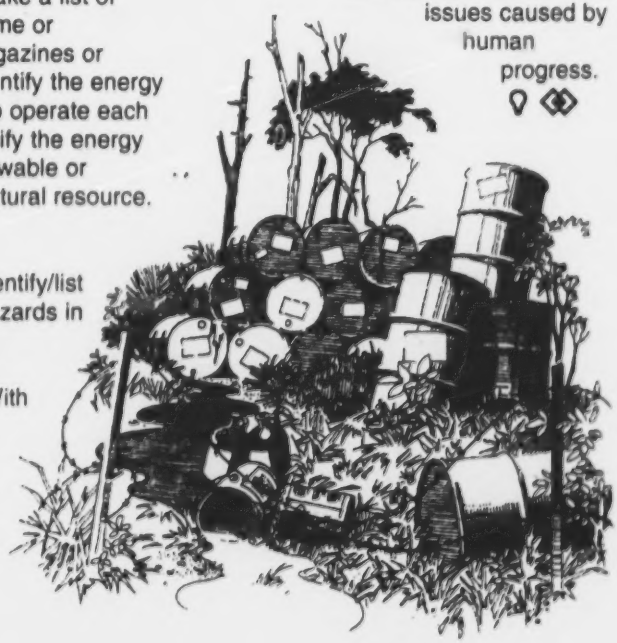
4. Have learners identify/list environmental hazards in the home using Supplement 11, "What's Wrong With This Kitchen?" Explain how each of the items harm the environment. Have learners evaluate a kitchen for environmental hazards and volunteer what could be done to change the situation.

5. Have learners brainstorm ways to be more responsible consumers for the environment by listing practices or products to change. An example could be using cloth instead of paper towels.

6. Using Supplement 10, "Earth-Friendly Shopping," have learners discuss which of these ideas they can use to be a responsible environmental consumer. Add other suggestions.

7. Individual learners might research what the local environment was like many years ago and write a report or collect pictures and make a display of then and now. ▣

8. Have learners compile a list of local environmental issues caused by human progress.



COMPETENCY FOUR

Apply Principles of Conservation In Consumption Practices.

Learner Outcomes

- Recognize the need for personal commitment to environmental problems.
- Identify consumption practices and techniques needed for conservation of resources.
- Select and prepare an individual action plan for applying conservation principles.

Definitions

consumption	- to use up
conservation	- to prevent limited natural resources from being wasted
energy	- resources used to produce power or heat
voluntary simplicity	- lifestyle which includes using resources conservatively
recycle	- to use again as a new product or packaging

Key Ideas

The terms "throw-away society" and "wasteful" seem appropriate if one considers that more than half of what is thrown away still has a value. Many products purchased are thrown away without even being used.

The heavy demands for energy (resources used to produce power or heat) to fulfill wants and needs not only makes energy more costly, but can contribute to shortages. The result may be the need for drastic changes in lifestyle soon, unless efforts are made to conserve.

"Voluntary simplicity" is a term for a lifestyle in which people choose to adopt principles of conservation of nature and energy. The lifestyle of voluntary simplicity consists of living more simply, recycling and sharing goods and services with other people, and working to find creative solutions to common problems.

Solid waste disposal is a concern of today's throw-away society. In Illinois alone, each person produces about five pounds of garbage daily. This means each person produces almost a ton of garbage each year. Most of this garbage ends up in landfills. The problem is that landfills are filling up.

Conservation means to protect resources from waste. Conservation principles include limiting the amount of waste produced. The three Rs for conserving by limiting the amount of solid waste produced are REDUCE the quantity of waste produced by recycling or buying items with the least amount of packaging, REUSE items, and RECYCLE (collect used products or packaging and turn them into new products or packaging).

Strategies/Methods

1. The facilitator should define conservation. The facilitator might stimulate discussion of individual conservation practices using Supplement 14, "Assessment of Resource Conservation Practices."

2. Supplement 15, "A Mountain of Garbage," can be used to define the need for conservation. Use magazine or newspaper pictures to illustrate a "throw-away society." Analyze what items are thrown away.

3. The facilitator could illustrate the need for conservation in packaging by showing all the packaging and paper goods given with a meal from a fast-food restaurant. Ask what effect on the environment each type of packaging material has. Each type of packaging could be identified as essential, convenient, or unnecessary.

4. The facilitator may introduce "voluntary simplicity" as a means of conserving resources. Supplement 17, "Voluntary Lifestyle Options," can be used to illustrate some conservation practices. The facilitator could ask learners to identify how conservation is practiced in each case situation.

5. The facilitator may wish to call attention to how personal values influence decisions to conserve energy. The exercise in Supplement 18, "Baker's Dozen," can help learners identify the importance placed on electrical appliances.

6. If appropriate, the facilitator could provide examples of energy guide labels on appliances in order to demonstrate energy savings from one appliance to another.

7. Supplement 19 can be used as a handout to define the three Rs in conservation practices: REDUCE the trash produced by choosing products with little packaging, REUSE products, and RECYCLE or turn products or packaging into new products. Discuss with learners any that they have or are using.

8. If appropriate or of interest to learners, Supplement 20 might be used as a resource on how to prepare products and packaging for recycling. The facilitator and/or learners can bring in any local information on recycling.

9. The facilitator may wish to consider having a resource person, such as a representative of a local utility company, to discuss where highest energy costs are in the home or how to conserve energy and money.

Suggested Activities

1. Have learners develop awareness of garbage at home by completing Supplement 21, "Do a Home Garbage Survey." Discuss any of the questions following on the survey.

2. Have learners brainstorm ways to reduce, reuse, or recycle the contents of a typical five-pound residential garbage bag. (See Supplement 16, "Garbage Bag Recipe.")

3. Using Supplement 22, "Understanding Environmental Symbols," and 23, "Making Sense Out of Messages on Labels," have learners bring in products which have the illustrated symbols.

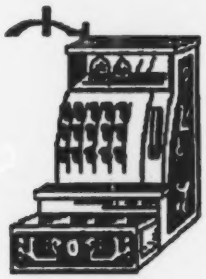
4. Depending on interest and appropriateness, have learners prepare an exhibit or display of decorative or useful products created from throw-aways. Examples could be jewelry made from old buttons and scrap fabric or toys from hosiery containers. Supplement 24, "New Uses for Old Throw-Aways," could be used for generating ideas. The display might be divided into the three Rs: reduce, reuse, recycle.

5. Have learners work in pairs or groups and describe actions which could be taken to save energy in any of these categories: heating and cooling, electrical appliances, water, cooking, and clothing. Individuals may research topics as appropriate.

6. Individual learners might develop and implement a plan to save energy OR they may develop and implement a plan for conserving wastes. Results could be shared if volunteered.

SUPPLEMENT 1

I Have More Than Money



A resource is something you can use to get what you need. Every person has resources other than money. List your resources below.

1. SKILLS—

2. ABILITIES—

3. PERSONAL QUALITES—

4. INTERESTS—

5. KNOWLEDGE—

6. ENERGY—

7. TIME—

8. POSSESSIONS—

9. COMMUNITY—

10. INSURANCE—

11. CREDIT—

12. MONEY—

Case Study

Mr. and Mrs. Johnson lived quite comfortably when their children were teenagers. Mr. Johnson's business was doing very well. They built a new home, bought a big boat, had several cars, and took many vacation trips. After a few years, due to changes in the economy, Mr. Johnson's business declined. They found it necessary to sell their home. Their home had become run-down because they had not taken proper care of it. The selling price was not as high as they had hoped it would be. The cost of living was going up, but their income and the value of their possessions were going down. They were caught in a very difficult situation.

In contrast to the Johnson situation, the Mendozas lived through the same period. Mr. Mendoza had a modest income. However, early in their married lives, the Mendozas made plans for their future. They decided on their priorities and long-range goals. A small amount of money was set aside each month for retirement. They also set up a savings plan for their children's educations. Mr. Mendoza learned many skills useful in caring for a home such as carpentry and plumbing. Mrs. Mendoza sewed curtains and draperies and reupholstered furniture. These combined skills provided them with a modest, but comfortable and attractive home. After their children left home, the Mendozas were able to sell the house. That money, along with some of the money which had been put in the retirement plan, made it possible for them to buy a small home near the lake. They were able to achieve one of their long-term goals through effective management.

This case study illustrates the difference between having many resources and using limited resources wisely.

Source: Wehlage, N. (1989). *Goals for living: Managing your resources* (p. 40). South Holland, IL: Goodheart-Willcox. Used with permission.

SUPPLEMENT 3

What can I use to get _____ when there is NO MONEY?

WHAT IS NEEDED:	RESOURCE (NO $):
Eyeglasses	Trade
	Expand
	Share
Car repair	Trade
	Expand
	Share
Other _____	Trade
	Expand
	Share

SUPPLEMENT 4

My Goal Analysis:

MY GOALS	RESOURCES I NEED
Education	
Career	
Family	
Money	
Lifestyle	
Health	

SUPPLEMENT 5

Your Choice

Prepare cards for use in a game by cutting out pictures from magazines or sketching items or writing the words of items learners might want to buy. The following items could be included:

Clothes
Annual visit to doctor
Dental check-up
Down payment on TV
Life insurance payment
College education for child
Payments on new car
Toys for children
Furniture

Divide large group into small groups of four or five. Distribute equal numbers of cards (4-5 each) to learners. Direct each player to arrange cards in the order in which she/he would buy items. Those she/he would not buy at all should be discarded. If another player would like to have an item on a card which has been discarded, she/he may pick up that card and add it to the cards in her/his hand. After each player has finished, the following questions could be raised:

- Why did you arrange the cards in the order you did?
  (Try to relate learners' answers to needs, wants, stage in family's life cycle, and available resources.)

- Why did you discard an item?

- What values do your choices indicate?

Adapted from *Consumer education for families with limited incomes* (p. 47). (1971, February). Lubbock: Texas Tech University, College of Home Economics, Department of Home Economics Education.

SUPPLEMENT 6

The Decision-Making Process

To make a DECISION, ask . . .

1.	What is the problem?
2.	What is important to you?
3.	What do you have to work with?
4.	What are possible choices?
5.	What are outcomes of each choice?
6.	What is the best choice?
7.	Did it work? What should be done?

SUPPLEMENT 7

The Environmental Crisis

The environment is people and all the living and nonliving things around. People depend on some things in the environment to live. Clean air to breathe, pure water to drink, and land on which to safely plant crops are all basic necessities of life. They are also the three major parts of the environment. As a side effect of living, some parts of the environment are made dirty and unhealthy. Air, water, and land are all threatened as a global environmental crisis grows.

When air is made dirty and unhealthy, it is called pollution. The main causes of air pollution are smoke and exhaust from the burning of fossil fuels. These are the coal, oil, and natural gas used to power the engines of motor vehicles and factories. There are other sources of air pollution. Smoke from burning cigarettes and from the burning of trash makes the air dirty. So do chemicals that are used to kill insects.

Air pollution harms people in a number of ways. Dirty air can make eyes water. Gas in car exhaust—carbon monoxide—can cause headaches, tiredness, and dizziness. Scientists have linked dirty air to such diseases as emphysema, lung and other forms of cancer, pneumonia and bronchitis, skin diseases, and allergies. Pollution makes breathing hard for people who have asthma, and may increase the risk of heart attack since the struggle to breathe can strain the heart.

Some scientists think that dirty air has three other dangerous results:

1. *The greenhouse effect.* By putting more carbon monoxide in the air (from burning coal, oil, and gas), pollution may make the world warmer. The carbon monoxide acts as a blanket that keeps warmth near the earth. This is also called global warming. If this goes on, some scientists believe, some of the ice in the north and south poles may melt. This new water may cause oceans to rise, which may cause some coastal areas to become flooded. In some areas, not enough rainfall might cause crop failure and more desert areas.

2. *Harm to the ozone layer.* High above the earth is a layer of a kind of oxygen called ozone. This layer protects humans from the sun's harmful ultraviolet rays. Air pollution may be damaging this protective layer. Some scientists believe they have found a hole in the ozone layer. They worry that the hole may allow more ultraviolet rays to reach the earth's surface. More ultraviolet rays could cause cataracts in the eye, more skin cancer, and might affect the body's ability to fight off disease which could leave people open to any number of serious health problems. Certain chemicals used as cooling agents in refrigerators, propellants in aerosol sprays, blowing agents in foam insulation, cleaning agents in making electronics, and chemicals in fire extinguishers are thought to be causing the kind of air pollution which may damage the protective ozone layer.

3. *Acid rain.* The chemicals and dirt pumped into the air in smoke and exhaust stay there. When coal and oil are burned, gases form which produce acids. When rain comes, this pollution (including the acids which have formed) is washed to the ground. The rain that contains this type of pollution is called acid rain. Acid rain may kill trees and plants along with fish and other water life. It also eats away at the stone used in some buildings. Some signs of acid rain or other air-pollution damage may include: shortened growing season, discoloration of bark or leaves, and a large number of dead trees.

The air breathed at home is often as polluted as the air outside. Home pollutants may come from aerosol sprays, cigarette smoke, foam insulation, cleaning and cooking materials, radon, asbestos, household chemicals, and household equipment not working properly.

Radon is a gas which has no color and no smell and is formed under the ground by the decay of uranium in the soil and rock. If radon gas seeps into a house (especially through a basement) and gets trapped, it can reach a dangerous level and may cause lung cancer. Tests can be run to see if radon gas is in a house. If there is a possibility of radon gas, people may avoid living and sleeping in basement areas, and seal cracks in basement walls and floors.

Asbestos is a material made of tiny fibers that has been used to insulate walls, heating pipes, and fireplaces, and to strengthen vinyl floors and joint materials. If asbestos is damaged, it may release tiny fibers into the air which can cause cancer and lung scarring if breathed in over a long period of time. Children may be harmed more easily since they breathe more air, pound for pound, than adults. Asbestos should only be removed by people trained to remove it.

Household chemicals include such things as those products used to polish, paint, kill germs, open drains, and get rid of bugs in the home. Many of the thousands of chemicals do good things, but some may be serious threats to health if not used or disposed of properly. Chemicals that are harmful are called toxic or poisonous. Some household chemicals can cause breathing problems, dizziness, a blah feeling, mental confusion or depression, and headaches. Chemicals used to kill insects, weeds, rats and mice, and fungi are called pesticides. Pesticides may be linked to such conditions as birth defects and cancer.

Chimneys, furnaces, gas and oil stoves, clothes dryers, and water heaters that are damaged or not working properly can release poisonous gases into the air. If these gases build up, they can cause bronchitis, headaches, dizziness, nausea, and fatigue. Gas stoves should have a hood that gets rid of gases to the outside. Gas flames should be burning blue; orange flames may be a sign that the carbon monoxide levels are too high.

Noise pollution is a type of air pollution. Noise can result in hearing loss and stress. In addition to loud industrial noises, home appliances and loud music may produce noise in a range that is harmful.

Water makes up about two-thirds of the human body. Water is essential to human life. If the water supply becomes poisoned, life cannot survive. Today, in the United States, the average person uses over 70 gallons of water a day at home. About 1500 gallons of water a day per person is used for recreation, cooling, producing food, and industry. About half of all Americans depend on ground water under the surface of the earth for drinking water. This ground water is drawn from below the earth's surface in wells. Some of this ground water has been poisoned by wastes produced by industry and the military, use of pesticides in agriculture, and leaks from garbage in landfills. Cancer, birth defects, and miscarriages have been associated with toxic (poison) waste dumped into landfills where it seeped into groundwater below the surface of the earth (e.g., the Love Canal area of Niagara Falls, New York, in the mid 1970s). Getting rid of household wastes can pollute water. For example, one gallon of used motor oil can pollute a million gallons of water. Household batteries leak poison chemicals which can find their way into the water supply. Toxic chemicals in the home which require special ways to dispose of them may include solvents, paints, pesticides, cleaners, and phosphates in detergents. Toxic wastes in the home may need to be disposed of very carefully. Sometimes the local health department or the container label can give safe ways to dispose of the chemical.

Land may be put in danger by washing away of soil (erosion) due to poor agricultural management; acid rain which may make the quality of the soil poor and may kill plants and forests; taking of land to build homes, shopping centers, offices, and factories; use of land to dispose of waste in landfills; and disposing of waste which may contaminate the soil for hundreds of years (e.g., the disposal of radioactive waste from such places as nuclear power plants).

Sources: Merki, M. (1990). *Teen health* (pp. 428-443). Mission Hills, CA: Glencoe/McGraw-Hill.
Lloyd-Kulkin, D. (1991). *ENTERING ADULTHOOD (Creating a healthy environment)*. Santa Cruz, CA: Network Publications.

SUPPLEMENT 8

Pretest on Limited Resources

DIRECTIONS: Read each item and choose the answer which completes a true statement. Draw a circle around your answer.

1. Bottled water

   A. is pure.
   B. is "Pasteurized" to kill all bacteria.
   C. may contain pesticides or contaminants.
   D. is safer and more healthful than tap water.

2. What happens to plastic when it is thrown away?

   A. It disintegrates and becomes soil.
   B. It disintegrates and becomes fertilizer.
   C. It stays around for hundreds of years.
   D. It disappears.

3. How much of the stuff we throw out could be recycled?

   A. none of it - garbage is no good for anything
   B. only glass, aluminum, and paper
   C. approximately half of it
   D. all of it

4. "Organic" garbage means

   A. made out of things which were once alive.
   B. only things which worms will eat.
   C. garbage consisting of disposable things.
   D. good for the earth.

5. The "greenhouse effect"

   A. keeps the earth comfortably warm when functioning properly.
   B. means producing plenty of carbon dioxide so plants can grow.
   C. means producing plenty of oxygen so plants can grow.
   D. means destroying the earth's protective ozone layer.

6. The average American family produces about how many pounds of trash every week?

   A. 5 pounds of trash
   B. 25 pounds of trash
   C. 50 pounds of trash
   D. 100 pounds of trash

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7. About how much water does the average American use per day at home?

A. 7 gallons
B. 17 gallons
C. 57 gallons
D. 70 gallons

8. "Recycling" means

A. finding a new use for something.
B. fixing something that is broken.
C. not buying things which cannot be reused.
D. using up.

9. The things below which are "biodegradable" are

A. plastic bag and plastic wrap.
B. apple core and leaf of lettuce.
C. styrofoam cup and "peanut" packing material.
D. all the above

10. How much of the plastic we buy and throw away is just packaging?

A. one-tenth
B. one-fourth
C. one-half
D. three-fourths

SUPPLEMENT 8A

Facilitator's Guide to Pretest on Limited Resources

1. C. Bottled waters are **not** "pure" or "sterile." Some bottled waters are merely municipal tap water in a bottle with an attractive label and a refreshing name. Bottled water is regulated by the Food and Drug Administration, and standards are set, but pesticides or contaminants, as well as minute, harmless amounts of bacteria may be present (Miller, 1991).

2. C. Plastic is almost impossible to break down. Even biodegradable plastic bags never disappear—they just break up into little pieces. Plastic products clutter landfills, or if it is burned, it releases poisonous gases. Manufacturers are beginning to use recycled plastics to produce automotive parts, floor mats, fiberfill, plastic lumber, and other specialty parts (Gaskins, 1989, pp. 26-29).

3. C. People in Illinois produce about 14 million tons of garbage a year. More than 90% of Illinois' garbage is buried in landfills. About half of what is thrown away could be recycled.

4. A. Organic garbage means made of things which were once alive such as yard waste and food scraps. More than half of the trash a family throws away every year is organic. Much organic garbage can be composted (turn it back into rich, fertile soil) (The Earth Works Group, 1990).

5. A. Natural gases in the atmosphere form a blanket which allows sunlight to reach the earth's surface, but prevents heat from escaping (much like the glass in a greenhouse). This gas blanket traps heat close to the surface and keeps the earth comfortably warm when functioning properly. The problem is that humans have produced too many gases and the temperature of the earth may become too hot.

6. D. It has been estimated that the average American produces about 5 pounds of trash a day, and about 100 pounds of trash per family per week. Mounds of trash have overwhelmed town dumps, many of which have been closed for dangerous pollution problems. Eighty to ninety percent of rubbish is dumped in landfill sites and buried; landfills are filling up. At the current rate of producing garbage, an estimated 500 new dumps are needed each year. The waste problem seems to reflect a lifestyle that emphasizes shopping convenience, quick preparation and use, and easy disposal.

7. D. It is estimated that the average person in the United States uses over 70 gallons of water a day at home. About 75% of the water used in the home is used in the bathrooms.

8. A. Choosing the best buy for the money may now include choosing products which have a long useful life. Recycling (finding a new use for something), repairing instead of throwing something away, and reducing waste may become important ways to keep limited resources from being used up.

9. B. "Biodegradable" means to break down and go back to the earth. The apple core and lettuce leaf can turn into soil again. The plastic and styrofoam products are made from the earth's resources, but have been changed into something that cannot become a part of the earth again.

10. C. More than half of all packaging thrown away each year are plastics. Each American uses about 190 pounds of plastic per year and about 60 pounds of it is packaging which is discarded as soon as the package is opened.

Effects of Resource Use on the Environment

The average American produces 5 pounds of trash a day (1800 pounds a year, per person).

Twenty percent of what we buy never gets used and eventually gets dumped.

Paper products account for over 40% of U.S. trash.

We can recycle paper, plastic, aluminum, glass, scrap tires, and used motor oil.

Throwing away a soft drink can is like throwing away a half can full of gasoline. (This is how much energy it takes to make a new can.)

Americans in an average household throw out about 500 aluminum cans a year. That is equal to about 22 gallons of gasoline.

Americans throw out enough paper and wood products each year to heat 5 million homes for 200 years.

Plastic-backed disposable diapers dumped in landfills don't begin to decompose for 500 years.

Eighty percent of garbage ends up in landfills and dumps. Only 10% is recycled. A third of the waste in landfills is packaging.

Every hour, Americans go through 2.5 million plastic bottles. They are almost impossible to break down, and they release poisonous gases when burned.

In 1988, 300 million tons of dangerous chemical wastes were dumped into American landfills and into the oceans and air.

Toxic chemicals pollute water supplies, and can cause birth defects, respiratory diseases, and other illnesses.

Recycling helps conserve both natural resources and energy. Every ton of recycled paper saves 17 trees, 7000 gallons of water, and enough energy to heat the average home for 6 months.

By the mid 1990s, it is estimated that the majority of Illinois landfill space will be used up, and landfills will have to close.

One gallon of motor oil can ruin a million gallons of water.

Source: Fitzgerald, N. (1990, September). Earth friendly shopping: A choices guide. *Choices*, pp. 34-36.

SUPPLEMENT 10

Earth-Friendly Shopping

With every purchase, a decision is made which may help or hurt the environment. Every action has an impact. The goal is to make an impact which helps the environment. The lists below identify some ways to shop "earth-friendly."

Instead of . . .	Use . . .
individual size servings	simply packaged products
variety pack of cereal	regular box of cereal
foods preserved in lots of plastic, foil, cardboard	fresh foods
single-use napkins, plates, cups	glass, cloth, pottery
products in throw-away containers	products in recycled or recyclable containers
poison chemicals for cleaning	safer, homemade cleaners
aerosol containers	pump-spray bottles
plastic blister packs	products in no packaging
aluminum foil	waxed paper
gift wrap	old greeting cards, fabric
styrofoam	cardboard or reusable containers
disposable razors	regular, reusable razors
single-use containers	refillable containers
snack packs	bulk sizes of food which can be stored in individual size containers
oven cleaner	salt and soda
mercury or cadmium batteries	rechargeable or solar-powered batteries
throwing away broken items	recycle and repair
standard incandescent light	energy-efficient compact fluorescent light

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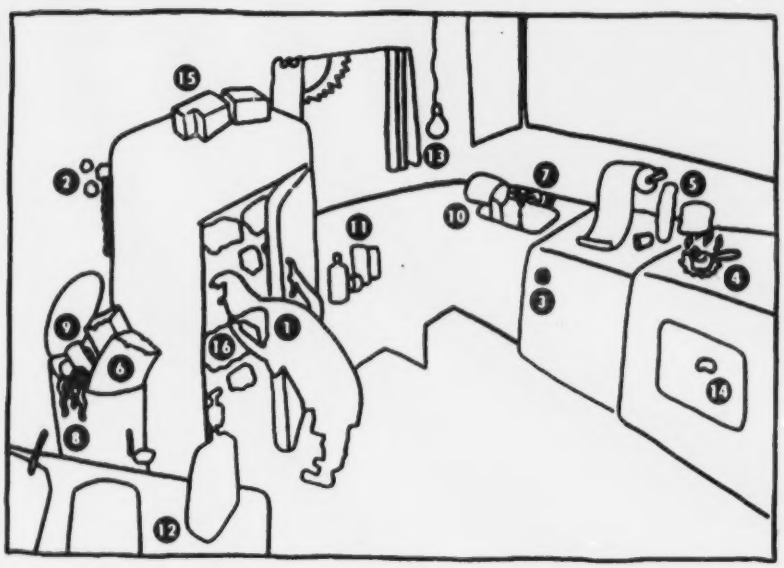
SUPPLEMENT 11

What's Wrong With This Kitchen?

The family that lives here may cook up heavenly dinners, but they've turned their kitchen into a den of earthly horrors. There are at least 16 environmental nightmares in this picture. Write as many as you can find on the lines below. Then turn the page for answers.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____



If you want to help save the planet, the best place to start is in your kitchen. Use this list to give your kitchen an environmental checkup, and then remember to . . .

REDUCE WASTE
REUSE JUST ABOUT EVERYTHING
RECYCLE WHATEVER YOU CAN

1. *Decide what you want before peeking in the refrigerator.* The average refrigerator is opened more than 8,000 times a year, letting cold air out and warm air in, and guzzling extra electricity.

2. *Beware of dust!* Pull out the fridge occasionally and get rid of dustballs on coils. Refrigerators with clean motors run more efficiently, use less energy, and last for years. (Also check the inside of the ice-box. Make sure it's cleaned and defrosted periodically.) Refrigerators use up to 7% of the country's electrical consumption.

3. *Don't use the dishwasher for drying dishes.* When the wash cycle is over, open the door and let dishes air-dry for an energy savings of about 25%. More energy-savers: Rinse dishes carefully before loading them, set the dial on the "light cycle" to cut back on water and electricity use, and only run the dishwasher when full.

4. *Match the size of pots and pans to the size of stove burners.* Use pans that are no more than an inch larger than the coils on your stove top. And check out the bottom of the pan, too. Cookware with flat bottoms transfers heat more efficiently. Also, put a lid on the pan when you're boiling water. It will come to a boil faster.

5. *Ban paper products from the kitchen.* Use rags instead of paper towels; use "real" dishes instead of paper plates and cups. Forty-one percent of what goes into the trash can is paper—it's the biggest percentage of household waste.

6. *Don't throw grocery bags away.* Take them back to the supermarket. When you unpack groceries, fold up the bags and use them again the next time you shop—they will probably last through a half dozen shopping excursions. Some stores offer a cash bonus for every bag you return.

7. *Fix leaky faucets immediately.* Find the wrench or call the plumber! Even a tiny leak can waste more than 3,000 gallons of water a year.

8. *Don't throw out leftovers.* Start a compost heap, where food will decompose and turn into fertilizer for your garden. Food scraps make up the second-largest proportion—about 8%—of the waste stream.

9. *Don't send your empty soda can to an early grave.* When you throw it in the trash, you condemn it to hundreds of years in a landfill. We use more than 80 billion aluminum soda cans a year, so don't let all that metal go to waste. Almost every community has a recycling program for aluminum cans. Find out about yours.

10. *Don't pour hazardous substances like paint down the drain.* They can get in the water supply and harm the environment. How about donating leftover paint to a community group? Batteries, oven cleaner, bug sprays, and drain cleaners are hazardous materials, too. Give away usable leftovers or bring them to community collection sites.

11. *Don't use aerosol sprays.* Even though they no longer contain ozone-eating CFCs, they still have chemicals that contribute to air pollution. They are difficult to dispose of and impossible to recycle. Look for cooking sprays in a pump bottle, or use a little olive oil—from a recyclable glass bottle.

12. *Many cleaning products have harsh chemicals that damage the environment* (chlorine, ammonia, and hydrochloric acid). There are earth-friendly alternatives.

13. *Turn out the lights whenever they are not in use.* It takes more energy to leave lights burning than it does to turn them back on again when you return. More energy savers: Use compact fluorescent light bulbs instead of the regular incandescent kind. Dust light bulbs off once in a while—clean bulbs use less energy and deliver more brightness for your money. And pull open the curtains to rely on natural light whenever you can.

14. *Don't use the full-size oven for small jobs.* If you're fixing yourself a baked potato or a frozen pizza, use the toaster oven instead for big energy savings. More energy savers: Don't peek in the oven when you're baking; it loses 20% of its heat every time you open the door. Turn the oven off a couple of minutes before baking is done—the residual heat will finish the cooking process for free.

15. *Avoid using single-serving products.* Some could be juice boxes with straws, prewrapped snack cakes, and individual pudding or yogurt cups. They all have excess packaging. It takes more resources, money, and energy to produce them, and they take up much more room in our overflowing landfills. Instead, choose the biggest package that's practical for your family.

16. *Avoid using tin foil and other wrappings that you use only once.* They're made with nonrenewable resources like petroleum and aluminum and add more trash to the landfill. Store food in reusable containers: sturdy plastic bowls with airtight lids, or recycled deli containers, take-out boxes, even bread wrappers.

Source: Fitzgerald, N. (1992, February). What's wrong with this kitchen? *Choices*, pp. 30-33, 36. Used with permission.

SUPPLEMENT 12

Healthy Alternatives to Hazardous Home Maintenance Products

Job	What Might Be Used
1. Air Freshener	Open the windows and turn on a fan to get rid of unwanted odors. A container of potpourri, with a natural scent such as ground cloves and peppermint, freshens the air. Setting out vinegar in an open dish, or an open box of baking soda also helps.
2. Drain opener	PREVENTING CLOGS: Use a strainer. Flush drain weekly with boiling water. ELIMINATING CLOGS: Try a plunger first. Pour 1/2 cup soda into drain, followed by 2 cups boiling water. Or, use 1/2 cup each baking soda and vinegar. Cover drain and let sit several minutes, then pour a kettle of boiling water down to flush drain.
3. Disinfectant	Mix 1/4 cup borax in 1/2 gallon of hot water.
4. Floor cleaner	Mix 1 cup white vinegar with 2 gallons of water. Removes dull, greasy film. Polish with club soda or add skim milk to rinse water to shine.
5. Floor wax stripper	Pour club soda on the floor. Allow it to soak for several minutes and then scrub.
6. Floor wax	Rub floors with a mixture of one part boiled laundry starch with one part liquid soap.
7. Furniture polish	Use 1 tsp. lemon oil in 1 pint mineral oil—or rub crushed raw nuts on wood as an oily polish.
8. Glass cleaner	Mix two tablespoons of vinegar in one quart of water.
9. Oven cleaner	Make a paste of salt, baking soda, and water; apply with elbow grease.
10. Pest control	ANTS: Wipe the area with a wet cloth. Scatter hot pepper where the ants appear to come from. To keep ants away from the foundation of the house, sprinkle red chili pepper at the base. Bay leaves deter ants in cupboards. MOTHS: Store clothes in an old fashioned cedar chest, or place cedar chips around boxed clothes. ROACHES: Use a mixture of chopped bay leaves, cucumber skins, and boric acid in wall cracks. Or set down a dish with one part baking soda and one part brown sugar.
11. Rug cleaner	For wool and synthetic plush carpeting, pour sparkling soda water directly on the soiled area and blot dry with a towel.
12. Shoe polish	Beeswax.
13. Toilet bowl	Substitute 1/2 cup of bleach for bowl cleaner.
14. Wood floor	Use 1 part lemon juice to 2 parts olive or vegetable oil. Or use 3 parts olive oil to 1 part vinegar.

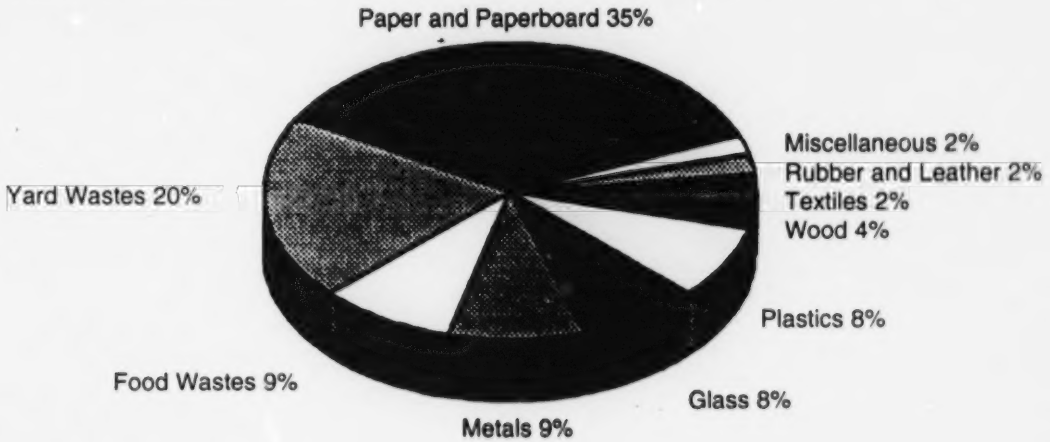
SUPPLEMENT 13

Did You Know These Facts and Figures About Solid Waste?

Illinois Department of Energy and Natural Resources Office of Solid Waste and Renewable Resources

- Americans throw away about 160 million tons of garbage each year. That's enough to fill a fleet of garbage trucks encircling the earth six times.
- It is difficult to build new landfills due to public opposition.
- In 1980, Illinois had 600 active landfills. Today, only 126 remain.
- At our current rate of disposal, all existing Illinois landfills will be closed by the mid-1990s.
- In Illinois, 92% of our solid waste goes to landfills, 2% is incinerated, and only 6% is currently recycled.

BASED ON NATIONAL AVERAGES BY WEIGHT, OUR GARBAGE IS MADE UP OF . . .



Discarded packaging accounts for about one-third of all the solid waste in the U.S.A.

Besides saving space in our landfills, reducing wastes saves natural resources and energy. When materials are recycled, fewer natural resources are used.

Recycling 117 pounds of paper saves one tree from being cut down.

Using recycled waste paper to manufacture new paper uses at least one-third less energy compared to making paper from the wood pulp of trees.

Various recycled paper grades can be made into new paper products like boxes, cartons, newspapers, or tissue paper products.

Recycled aluminum cans can be transformed into new cans.

Recycled steel can be turned into hammers, drills, and even steel used to build skyscrapers.
Recycled glass containers can be made into new glass bottles and jars.

Recycled plastic such as milk jugs (HDPE) and soda bottles (PET) can be processed and made into new products. Recycled soda bottles can be made into fiber fill for parkas and sleeping bags. Plastic lumber can be made from milk jugs and other plastics and used to build park benches and playground equipment.

SUPPLEMENT 14

Assessment of Resource Conservation Practices

DIRECTIONS: Read each statement below carefully and consider your conservation practices. Check the space which best describes your practices:

1 = No opportunity to do it
2 = Never do it, but have opportunity
3 = Sometimes
4 = Often
5 = Always

_____ 1. I turn off the television, radio, or stereo when not in use.

_____ 2. To keep warm in the winter, I wear several layers of clothing.

_____ 3. I turn down the furnace thermostat in the winter.

_____ 4. I pull drapes or shades in the winter to keep out the cold.

_____ 5. I turn the electric stove units off a few minutes before the cooking time is up.

_____ 6. I drive at a steady speed.

_____ 7. I turn up the thermostat in the summer.

_____ 8. I dry clothes on lines, racks, or hangers instead of using the clothes dryer.

_____ 9. I use major appliances such as the dishwasher, oven, and dryer at night or in the early morning to avoid heating up the house on hot days.

_____10. I step on the accelerator smoothly and slowly when driving.

_____11. I do not run water continuously when washing my hands or face, brushing my teeth, or shaving.

_____12. I turn out the lights when leaving a room.

_____13. When helping prepare meals, I use one appliance such as the oven or crockpot instead of several.

_____14. I wash single items of clothing by hand instead of using the washing machine.

_____15. I pull drapes or shades to keep out the sun in the summer.

_____16. When using the washing machine or clothes dryer, I wait until there is a full load of clothes.

_____17. I preheat the oven only when necessary.

_____18. When using the washing machine, I use cold water for washing and rinsing.

_____19. During the summer, I take advantage of breezes by opening windows and/or doors.

_____20. I air-dry my hair instead of using an electric dryer.

On all items except item 11, if you marked an item "often," "always," or "no opportunity," count one point. If you marked any of the items "sometimes," or "never," do not count any points. If you marked item 11 "sometimes," "never," or "no opportunity," give yourself one point. If you marked item 11 "often," or "always," do not give yourself any points. Total the number of points and compare with the scale below.

20 - 18 Good job! Keep leading us; serve as an inspiration.

17 - 15 You are getting close. Keep up the good work. Take a look at what you are doing and start to make some changes.

10 - 07 You know you can do better. Why not begin to make the needed changes?

06 - 00 You have a way to go. You probably have a sneaky suspicion that you should have begun yesterday. Look around at others who are trying to conserve, and ask yourself how you can adapt conservation practices to your life.

Follow-Up Questions

What does the word "conservation" mean to you? Give some examples of conservation practices you follow in your life.

What is the average conservation practice score of the class? Do you think your class is doing a good job in their conservation practices? Why or why not?

Which conservation practices are you following?

Which conservation practices do you need to improve?

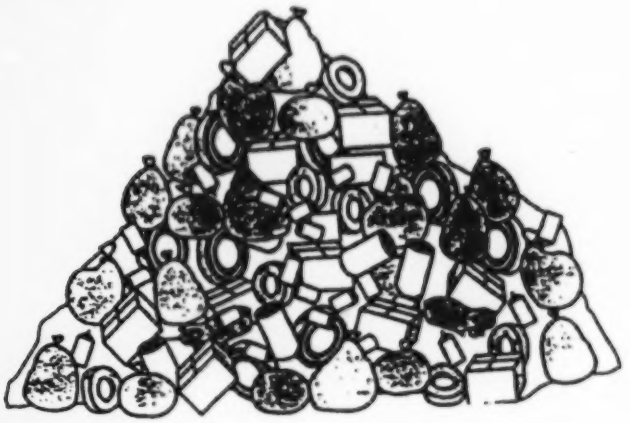
Which practices would be easiest to change? Why?

Which practices would be more difficult to change? Why? How can you begin? Once you begin, what incentives would you have to continue?

Source: Chamberlin, V., Volz, R., Lytle, J., & Kelly, J. (1982, Summer). Conservation questionnaire. *Tips & Topics*, pp. 2-4. Used with permission.

SUPPLEMENT 15

A Mountain of Garbage



"America To Be Buried Alive!" screams the headline. Is this some sinister plot to destroy the United States? No, it's merely a dramatic way to draw attention to the fact that we are running out of places to put all the trash and garbage that we produce. Something has to be done about it. The question is what?

Where Does It Go?

Americans throw out 160 million tons of garbage each year—that's enough to spread 30 stories high over 1,000 football fields. More than two-thirds of the nation's landfills (garbage dumps) have closed since the late 1970s. One-third of the remaining dumps will be closed by the mid-1990s. There are laws against dumping trash into the ocean.

So where is it all going to go? Where did it come from in the first place? And who cares, anyway?

The answer to the first question is that there is no place for it to go. The only solution is to reduce the amount of garbage we create and to find new ways to handle it. The real keys are to **reduce** the amount of trash and to **recycle** and **reuse** what we can.

Where Did It Come From?

To answer the second question—where did it all come from?—we have to look at our own lifestyles. We live in a throw-away society.

How many times have you ordered a fast-food hamburger that came wrapped in paper inside a Styrofoam box? How often do you carry disposable foil-lined juice packs, complete with shrink-wrapping and a plastic straw, to school or to a game, only to toss them in the garbage can (or worse, leave them on the ground) when you are finished? How often do you use a plastic razor to shave, then throw it out when the blade gets dull? How much junk mail comes to your house each week?

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Source: Illinois Department of Energy and Natural Resources. (1991, Summer). *Solid waste activity packet for teachers* (p. 9). Springfield: Author.

Garbage Bag Recipe

Ingredients of Garbage Bags

This list represents the contents of a typical five-pound residential trash bag.

paper plate

glass jars

some junk mail

plastic fresh produce bags

styrofoam cup

newspaper

plastic detergent bottle

apple core

dead branches and/or leaves

cardboard cereal box

brick pack juice containers

plastic-coated cardboard milk carton

styrofoam egg carton

fast-food restaurant packaging

brown paper bag

aluminum cans

disposable diaper

corrugated packing box

six-pack ring

plastic film

plastic margarine tub

banana peels

some dead flowers

cardboard egg carton

chicken bones

plastic cider jug

coffee grounds

2-liter plastic soda jug

Adapted from: *Association of Vermont recycler's teacher's resource guide for solid waste and recycling education* with permission. AVR, P.O. Box 1244, Montpelier, VT 05601.

SUPPLEMENT 17

Voluntary Lifestyle Options

People may choose to practice the voluntary simplicity lifestyle in differing ways depending on their circumstances. The lifestyle consists of self-determination, ecological awareness, material simplicity, and practical living and working environments. The following examples illustrate these factors.

A Lifestyle Option

The Browns, Norma and Abe, are a young couple living in a mobile home park. Although able to afford a car, they ride the bus to work and their bicycles to other places. They even walk for the fun of it. They share a lawnmower, washer/dryer, and vacuum cleaner with others in the park. In exchange for rides, Abe sometimes repairs plumbing or Norma will babysit.

A Lifestyle Option

Andre is a high school teenager. He heard about the oil shortages from his parents and became concerned about the use of natural resources. Acting on his concern, Andre is more careful lately to shut doors when the heat or air conditioning is on. In summer, he wears less clothing rather than adjusting the thermostat. In winter, he puts on another layer of clothing while indoors. Although only a small effort, this changed personal habit has a large effect over time.

A Lifestyle Option

Jean is a single young adult who works as a bookkeeper in a car dealership. Jean lives in a small upstairs apartment. Lately, Jean has become concerned about the quality of air, having read about asbestos and coal miners' lung problems. After consulting with other workers, Jean put the free "Thank You for Not Smoking" signs from the American Cancer Society on her apartment door, in her car, and on the door to the bookkeeping room at work. By starting earlier, Jean now walks to church rather than driving a car. She saves skins and parings from vegetables (which are biodegradable) and puts them on her landlord's garden. Her landlord gives her vegetables in exchange.

A Lifestyle Option

Mrs. Parker, a widow who lives alone, now closes off rooms not needed in her old home. She recycles aluminum cans, newspapers, old clothes, and even her old lawnmower for used parts. Brought up to "waste not, want not," she believes that letting a faucet drip or drafts to occur around a window are sheer folly. Time is the commodity she is rich in now. She shares her time by reading to visually impaired people and writing letters for them. She says, "they give me lots in return for my small gift of time."

For many reasons, these people have adjusted their lifestyles differently. Some choose to emphasize one aspect of voluntary simplicity (recycling, sharing, environmental concern) over another. Yet all, in their own way, are acting with concern for the future of spaceship earth.

Source: Pestle, R. (1984). *Voluntary simplicity: A lifestyle option* (p. 3). Washington, DC: Home Economics Education Association. Used with permission.

Baker's Dozen

List 13 (a baker's dozen) of your favorite things in your home that use electricity to operate.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

If you needed to use less electricity, what 3 things on your list could you do without? Draw a line through them. How did you choose these 3 to mark off?

What 3 things on your list mean the most to you and that you would hold onto until the very end? Circle these 3. Why are they the most important to you?

Adapted from Simon, S. (1972, Spring/Summer). Baker's dozen. In *Forum* (p. 5). New York, NY: J. C. Penney.

SUPPLEMENT 19

The Three Rs: Reduce . . . Reuse . . . Recycle

EVERYONE can reduce the garbage problem by practicing the three Rs.

Reduce
Reduce the amount of waste you create by buying products in bulk that are not excessively packaged.

Use both sides of the paper for school work, letter writing, and art projects.

Reduce junk mail by asking to be removed from junk mailing lists. Write to Direct Market Association, 6 East 43rd Street, New York, NY 10017.

Leave grass clippings on the lawn to reduce your yard waste. Grass blades are lawn food. As they decompose, they return nutrients to the soil.

Make a compost pile in your backyard and turn yard wastes like grass clippings and leaves into fertilizer.

Reuse
Use reusable tote bags for groceries.

Use a lunch box or reusable lunch bag for school, camp, or work. Use insulated jugs and reusable sandwich containers.

Encourage the use of washable, reusable trays, plates, bowls, glasses, and utensils rather than disposable ones.

Make art projects, games, and toys out of recycled or reused materials. Used milk containers make great bird feeders.

Use shredded newspaper for kitty litter and animal bedding.

Recycle
Become a part of recycling in your neighborhood.

Call your local recycling center to find out what materials are being recycled in your town.

Save bottles, cans, jars, and newspapers. Take them to your local recycling center or put them out at the curb if your community has a curbside recycling program.

Close the recycling "loop" by buying products made from recycled materials. Look for the recycling symbol—three arrows in a circle.

Source: Illinois Department of Energy and Natural Resources. (1991, Summer). *Solid waste activity packet for teachers* (p. 96). Springfield: Author.

SUPPLEMENT 20

Information: How To Separate Recyclables

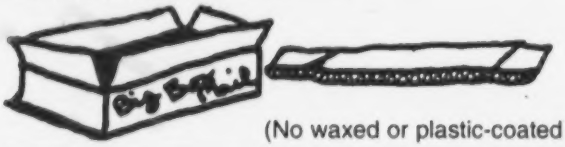
(Contact your local recycler or market for exact specifications.)

NEWSPAPER

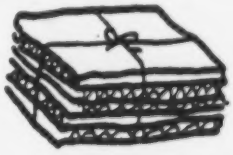
(No plastic twine or bags.)

Bundle and tie or lay flat in a large, paper grocery bag.

CORRUGATED CARDBOARD



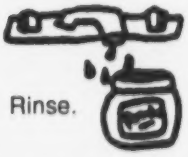
(No waxed or plastic-coated cardboard.)



Break and flatten corrugated. (Look for ribbed, wavy layer.) Bundle and tie or box.

GLASS

Separate by color. (GREEN - BROWN - CLEAR)



Rinse.

NO lightbulbs.

NO windows.

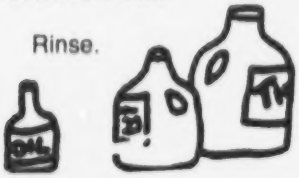
NO ceramics, pyrex, or tableware.

Remove metal or plastic caps and rings.

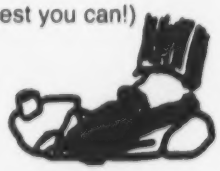
Bag or box.

PLASTIC JUGS

Rinse.



Crush (as best you can!)

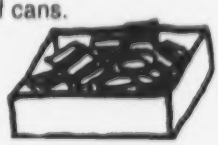


Bag or box.

(For motor oil jugs, leave caps on and do not rinse.)

METAL

Rinse completely. Remove any labels. Remove ends of cans.



Bag or Box.

Separate aluminum from steel. (Aluminum is not attracted by a magnet.)

Flatten.

PAPER Separate white ledger from mixed, colored paper.

No paper clips.

No envelopes.

Bag or box.

Source: Illinois Department of Energy and Natural Resources. (1991, Summer). *Solid waste activity packet for teachers* (p. 93) Springfield: Author.

SUPPLEMENT 21

Do a Home Garbage Survey

Track the throw-aways at your home for one week. If you recycle, keep track of the items you recycle.

1. List the garbage according to type.
2. Count the pieces of garbage or recyclables and record each item using the table below.
3. Total each column.
4. Bring your survey back to class.

HOME GARBAGE SURVEY
(Number of Pieces of Garbage)

Days of Week	Aluminum	Scrap Paper	Newspaper	Glass	Tin Cans	Plastic	Renewable Resource? YES/NO	Recyclable? Reusable? YES/NO
Sun								
Mon								
Tues								
Wed								
Thur								
Fri								
Sat								
Total Number								

Source: Illinois Department of Energy and Natural Resources. (1990, Fall). *Solid waste: From problems to solutions. A teacher's handbook on waste reduction* (p. 15). Springfield: Author.

Discussion Questions

What did you find out about what your family throws away?

What ideas do you have for what you could do with the trash generated at home?

Trace the "afterlife" of one of the items on the checklist. For example, what happens to the plastic bag or paper milk carton after it's taken to the landfill? Does it decompose? Does its decomposition create harmful byproducts? What impacts might its decomposition have on air, soil, water, and health?

Create a reusable item from something you're going to throw away.

Discuss the role of yard sales, garage sales, or rag sales in recycling and reusing materials.

Americans generate more trash per person than the people of any other country in the world. How do you feel about this?

SUPPLEMENT 22

Understanding Environmental Symbols

A quick look at environmental symbols

The recycled symbol looks like chasing arrows. The arrows are usually seen through or white and they are shown on a darker, solid background.

The recyclable symbol looks a lot like the recycled symbol. The chasing arrows are outlined and they are not shown on a background. Sometimes the chasing outlined arrows are colored.

The SCS Green Cross and Globe Certification Symbol. Products go through a certification process by a company called Scientific Certification Systems (SCS) which reviews environmental claims. SCS certifies exceptional environmental achievement such as products with high recycled content or biodegradable ingredients.

The SPI coding symbol. Some plastic containers have numbered codes within a triangle printed on them. The triangle of chasing arrows with a number inside might be on the top of the container or on the bottom. The numbers tell you the kind of plastic the container is made from.

PETE

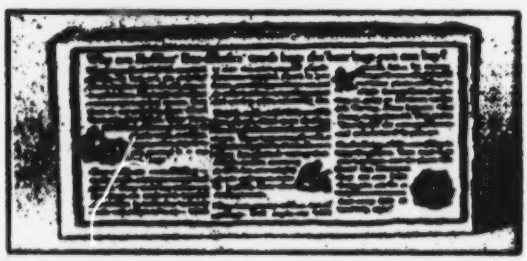
Source: Martucci, P. (1992, September 13). Confused by environmental claims? Here's help for shoppers: Grit's guide to labels and terms. *GRIT*, p. 21. Used with permission.

Making Sense Out of Messages on Labels

How Much Is Made from Recycled Content? Read the Labels to Find Out.

Recycled packages have different amounts of recycled content. Some have 100 percent recycled content; other products or packages are made from as little as 10 percent. Some companies list how much recycled content their product has.

Recycled—What was it before?



These trash bags are made from recycled milk jugs and contain 30 percent recycled plastic.

How Much Recycled Content?

These kitchen bags contain 70 percent recycled plastic. Note the Green Cross and the recycled label.

Recycled Content: Where Does It Come from?

Pre-Consumer Materials or Waste: Some products or packages are made from scrap or other materials during manufacturing. Material that would have to be landfilled or incinerated is instead used to make products.

Post-Consumer Waste: This is material made from packages or containers that consumers or businesses have already used including items you separate for recycling.

Source Reduction: Some companies are manufacturing products that use less or lighter weight packaging. Prell Shampoo no longer comes in the outer box. L'eggs has changed its packaging, too. Soda or pop comes in lighter weight aluminum.

Concentrates and Refills: Concentrates and refills come in smaller packages which take up less room in the landfills.

Biodegradable: When exposed to certain bacteria, some products degrade into carbon dioxide, minerals, and water so they don't have to be landfilled or incinerated.

Source: Martucci, P. (1992, September 13). Confused by environmental terms. *GRIT*, p. 21. Used with permission.

SUPPLEMENT 24

New Uses for Old Throw-Aways

Not all of us are as frugal as the reader who told me she saves the red cellophane strips off her cigarette packs (she uses them for gift-tag ties). But many of you routinely use old fabric-softener sheets as drawer fresheners, old socks as dusting mitts, and decorated coffee cans as canisters. Here are lots more ways to use these and other throw-aways.

DON'T THROW IT AWAY

Plastic gallon jugs: The top half makes a funnel or a scoop; the bottom can store paintbrushes. Cut away one side and use as a toilet-brush holder.

15-mm film containers: Hold single stamps, straight pins, odd beads, sequins, needles, threaders, shirt buttons, a travel sewing kit, screws, tiny craft supplies.

Ashtrays: Spoon rests, candy dishes, soap holders, containers for potpourri.

Old towels: Cut into small rectangles and pink or stitch the edges. With these recyclable wipes you can clean up little faces, juice spills and smudged mirrors.

Egg cartons: Cut into pieces and use to pack breakables for mailing.

Plastic bread tabs: Use as stitch markers on needlework projects.

Newspapers: Make tubular furniture for kids: Mix a runny batch of wallpaper paste in a large tub. Wet newspaper pages, then wrap tightly around lengths of coat-hanger wire, smoothing out wrinkles as you go. When you've formed a dowel of the right thickness, set it aside for a day. The dried dowel can be drilled, cut and painted just like wood.

Commercial printers often have to trim paper to size after printing, and the remnants offer a wide variety of usable scraps of various colors, sizes, and textures. Call a local printer to see if he has (or will save) some that you can have for free for kids' arts and crafts projects.

GETTING CRAFTY

- Those plastic eggs in which L'Eggs pantyhose are sold can be made into candle molds, stamp holders, planters. They can also be used as Easter ornaments—just fill with candy and decorate with ribbons and stickers.
- Bottle caps—tops tacked to a board—make shoe scrapers or fish scalers.

SECOND TIME AROUND

- Styrofoam packing "peanuts" make good wall insulation.
- Broken mirrors can be recut by a glazier to make trivets for vases or to reflect the glory of your dining-room table centerpiece.

- Take an expired credit card and cut away all but the part with your name on it. Punch a hole in the plastic, sand the sharp edges and use as a luggage or key-chain tag.

- Recycle empty tissue boxes as receptacles for lint from the dryer or plastic bags from the supermarket.

THINGS TO DO WITH OLD CLOTHES

Jeans: Use pieces to make potholders. Cut tubes out of the legs, sew one end closed, thread a drawstring through the other to make a carryall bag. Make a jeans skirt out of the top. Rip out leg seams. Use a V-shaped wedge of scrap material to fill the gap between the legs.

T-shirt: Decorate to suit the recipient, then sew openings closed and stuff to make a pillow for a teenager's room.

Odd socks: Use as shoe bags in your suitcase. Cut tops off sweatsocks for tennis wristbands or drip-catchers when you paint.

PANTYHOSE STRETCHER

- To store onions, slip them into a length of clean pantyhose, tying a knot between each one. Snip onions off one at a time.

4 USES FOR A SPONGY FABRIC-SOFTENER SHEET

1. to cover drainage holes in flowerpots and keep dirt from falling through;
2. as fragrant cushion insoles in shoes;
3. to cover hanger ends so garments won't slip off;
4. to keep area rugs from sliding (sew several sheets together with a zigzag stitch; slip under rug).

Source: Mary Ellen says. . . . (1991, May 28). *Woman's Day*, p. 142.

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WORLD-CLASS EDUCATION FOR THE 21ST CENTURY: THE CHALLENGE AND THE VISION

VISION STATEMENT

As we approach the 21st century, there is broad-based agreement that the education we provide for our children will determine America's future role in the community of nations, the character of our society, and the quality of our individual lives. Thus, education has become the most important responsibility of our nation and our state, with an imperative for bold new directions and renewed commitments.

To meet the global challenges this responsibility presents, the State of Illinois will provide the leadership necessary to guarantee access to a system of high-quality public education. This system will develop in all students the knowledge, understanding, skills and attitudes that will enable all residents to lead productive and fulfilling lives in a complex and changing society. All students will be provided appropriate and adequate opportunities to learn to:

- communicate with words, numbers, visual images, symbols and sounds;
- think analytically and creatively, and be able to solve problems to meet personal, social and academic needs;
- develop physical and emotional well-being;
- contribute as citizens in local, state, national and global communities;
- work independently and cooperatively in groups;
- understand and appreciate the diversity of our world and the interdependence of its peoples;
- contribute to the economic well-being of society; and
- continue to learn throughout their lives.

MISSION STATEMENT

The State Board of Education believes that the current educational system is not meeting the needs of the people of Illinois. Substantial change is needed to fulfill this responsibility. The State Board of Education will provide the leadership necessary to begin this process of change by committing to the following goals.

ILLINOIS GOALS

1. Each Illinois public school student will exhibit mastery of the learner outcomes defined in the State Goals for Learning, demonstrate the ability to solve problems and perform tasks requiring higher-order thinking skills, and be prepared to succeed in our diverse society and the global work force.

2. All people of Illinois will be literate, lifelong learners who are knowledgeable about the rights and responsibilities of citizenship and able to contribute to the social and economic well-being of our diverse, global society.

3. All Illinois public school students will be served by an education delivery system which focuses on student outcomes; promotes maximum flexibility for shared decision making at the local level; and has an accountability process which includes rewards, interventions and assistance for schools.

4. All Illinois public school students will have access to schools and classrooms with highly qualified and effective professionals who ensure that students achieve high levels of learning.

5. All Illinois public school students will attend schools which effectively use technology as a resource to support student learning and improve operational efficiency.

6. All Illinois public school students will attend schools which actively develop the support, involvement and commitment of their community by the establishment of partnerships and/or linkages to ensure the success of all students.

7. Every Illinois public school student will attend a school that is supported by an adequate, equitable, stable and predictable system of finance.

8. Each child in Illinois will receive the support services necessary to enter the public school system ready to learn and progress successfully through school. The public school system will serve as a leader in collaborative efforts among private and public agencies so that comprehensive and coordinated health, human and social services reach children and their families.

Developed by citizens of Illinois through a process supported by the Governor, the Illinois State Board of Education and the Illinois Business Roundtable.
Adopted as a centerpiece for school improvement efforts.

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ILLINOIS STATE BOARD OF EDUCATION
100 North First Street, Springfield, Illinois 62777-0001

Michael W. Skarr, *Chairperson, Illinois State Board of Education*
Joseph A. Spagnolo, *State Superintendent of Education*

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